

Appl. No. 10/791,855
Reply to Office Action of December 14, 2004
Atty. Docket No. AP973US

Amendments to the Specification:

Please replace the paragraph beginning at page 6, line 13 with the following amended paragraph:

--Figures 3A, 3B and 3C are plan views of top, middle and bottom ~~metalisation~~ metalization layers of the photodetector;--

Please replace the paragraph beginning at page 8, line 14 with the following amended paragraph:

--Figures 3A, 3B and 3C show the three different ~~metalisation~~ metalization layers of the device. The top layer, shown in Figure 3A, comprises the contacts to the waveguide 106 and the ohmic contact to the semiconductor 108 that runs the length of the device. The waveguide layer, shown in Figure 3B, comprises the waveguide 100 and the contacts to the waveguide 102 and 103. The contacts to the waveguide comprise contact portions 103 that run alongside the waveguide and contact fingers 102 that make contact to the waveguide. The bottom layer, shown in Figure 3C, comprises an ohmic contact 110 to the semiconductor that runs the length and the width of the device.--

Please replace the paragraph beginning at page 7, line 21 with the following amended paragraph:

--The electrode configuration also comprises electrical ~~contacts~~ conductors 102, 103, 104, 106 connecting to the waveguide 100 on either side. Electrical access to the waveguide is enabled through the contacts 106 on the top of the device, connected to contact portions 103 by vias 104, in the form of trenches running almost the length of the semiconductor body 112 but stopping short at each end. The contact portions 103 are connected to the waveguide 100 by contact fingers 102, as illustrated in Figures 2, 3B and 4. The electrical contacts to the waveguide comprise contacts/electrodes on the top of the device 106 which connect to contacts at the waveguide level 103 through vias 104. The contacts at the waveguide level 103 make contact to the waveguide 100 through optically non-invasive contact fingers 102. The optically non-invasive contact fingers have width, w_p , of the same order as the waveguide width, w , as shown in Figure 3B, so as not to disrupt the plasmon polariton mode as it propagates along the waveguide. The contact finger length, L_p , is selected such that the contact portions 103 and vias 104 are positioned away from the plasmon polariton mode propagating along the waveguide 100. The thickness of the contact fingers 102 and the contact portions 103 can be less than or equal to the thickness of the waveguide 100.--